



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Kevin M. McHugh

Serial No.: 09/592,003

Filed: 06/12/00

Atty. Dkt.: EGG-PI-612A1

For: Rapid Solidification  
Processing System for  
Producing Molds, Dies  
and Related Tooling

Examiner: Leyson

Group Art Unit: 1722

7/KW  
3/5/02

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DECLARATION OF KEVIN M. McHUGH UNDER 37 CFR §1.132

Assistant Commissioner of Patents  
Washington, D.C. 20231

Sir:

I, Kevin M. McHugh, do hereby declare as follows:

1. I am the inventor of the invention claimed in the above-identified patent application.

2. I received a Bachelor of Science Degree, with a major in Chemistry, from the University of Maryland in 1981. I thereafter received a Ph.D. in Physical Chemistry from Johns Hopkins University in 1988.

3. I have been employed for the past twelve years at the Idaho National Engineering and Environmental Laboratory, most recently as an Senior Advisory Scientist, and prior to that time I was employed by Associated Western University for one and one half years as a Postdoctoral Fellow.

4. I have twelve years of experience in the field of spray forming and am skilled in the art.

5. I have reviewed the Orme et al. and Alvarez et al. references cited by the Examiner in the above-referenced application.

6. It would not be obvious to one skilled in the art to combine the references of Orme et al. and Alvarez et al., and that Orme et al. actually teaches away from the use of spray forming (such as Alvarez et al.) by noting the “disadvantages” of the spray technology relative to the Orme et al. invention. For example at column 2, lines 53-57 of Orme et al. it states that “It is submitted that use of controlled streams of droplets that are generated without the use of an atomizing or nebulizing gas, instead of droplet sprays, will lessen if not remove the above deficiencies associated with spray forming. . .”

7. Orme et al. further suggests the undesirability of combining the Orme et al. technology with spray forming technology (such as Alvarez et al.) by stating that “other shortcomings of spray manufacturing include the uncontrollable nature of the sizes and speeds of the droplets within the spray which leads to a less homogenous part, as the smaller droplets will cool faster and may presolidify before deposition”. (See Orme et al. column 4, lines 59-63). Contrary to this statement of Orme et al., it should be appreciated by the Examiner that the control of droplet sizes and speeds of droplets is an objective of my invention. (See: specification page 13, lines 19-22).

8. Another example of Orme et al. actually teaching away from its combination with spray forming technology is noted at column 8, lines 49-54 where Orme et al. provides that in spray forming technology “precise control of the droplets sizes is not possible” and it is the control of the droplets sizes that the Orme et al. attempts to achieve. (See column 2, lines 60-63).

9. The proposed combination of Orme et al. and Alvarez et al. would destroy the purpose or function of the Orme et al. invention. For example a stated purpose of the Orme et al. invention is the achievement of "precisely controlled streams of liquid droplets". (See; Orme et al. column 4, line 65 through column 5, line 1). However, as Orme et al. also notes a "deficiency of spray forming technologies is that "the spray of molten metal droplets is for the most part uncontrolled". Therefore, one skilled in the art would conclude from Orme et al. that its combination with the spray nozzle of Alvarez et al. would destroy the purpose/function of Orme et al. to "precisely control streams of liquid droplets".

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made of information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 1/24/2002

Kevin M. McHugh  
Kevin M. McHugh, Ph.D.

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